

Phe-Pro-His-Phe-Asp-Leu-Ser-His-Gly-Ser-Ala-Gln-Val, (SEQ ID NO: 1)

Cys-Phe-Pro-His-Phe-Asp-Leu-Ser-His-Gly-Ser-Ala-Gln-Val-Cys (SEQ ID NO: 2)

(where the two Cys residues form a disulfide bond),

Asp-Ala-Leu-Thr-asn-Ala-Val-Ala-His-Val-Asp-Asp-Met-Pro-Asn-ala-Leu-Ser-Ala
(SEQ ID NO: 3),

Phe-Leu-Gly-Phe-Pro-Thr (SEQ ID NO: 34),

Leu-Val-Val-Tyr-Pro-Trp-Thr-Gln-Arg-Phe (SEQ ID NO: 4),

Leu-Val-Val-Tyr-Pro-Trp-Thr-Gln-Arg (SEQ ID NO: 5),

Leu-Val-Val-Tyr-Pro-Trp-Thr-Gln (SEQ ID NO: 6),

Leu-Val-Val-Tyr-Pro-Trp-Thr (SEQ ID NO: 7),

Leu-Val-Val-Tyr-Pro-Trp (SEQ ID NO: 8),

Leu-Val-Val-Tyr-Pro (SEQ ID NO: 9),

Val-Val-Tyr-Pro-Trp-Thr-Gln (SEQ ID NO: 10),

Tyr-Pro-Trp-Thr-Gln-Arg-Phe (SEQ ID NO: 11),

Tyr-Pro-Trp-Thr-Gln-Arg (SEQ ID NO: 12),

Tyr-Pro-Trp-Thr-Gln (SEQ ID NO: 13), and

Tyr-Pro-Trp-Thr (SEQ ID NO: 28),

wherein said stem cells are cells which can generate multiple lineages or other stem cells.

51. (Amended) A method of stimulating stem cell proliferation comprising contacting hematopoietic cells with a stem cell proliferation stimulating amount of a compound capable of binding opiate receptors, wherein said stem cells are cells which can generate multiple lineages or other stem cells.

95. (Amended) A method of stimulating stem cell proliferation comprising contacting stem cells with a stem cell proliferation stimulating amount of INPROL or an opiate compound or a stem cell proliferation stimulating amount of a combination of INPROL and an opiate compound,

wherein said INPROL is selected from the group consisting of the alpha chain of hemoglobin, the beta chain of hemoglobin, the gamma chain of hemoglobin, the delta chain of hemoglobin, the epsilon chain of hemoglobin, the zeta chain of hemoglobin,

a polypeptide having the sequence of amino acids 1-97 of the human alpha hemoglobin chain,

a polypeptide having the sequence of amino acids 1-94 of the human alpha hemoglobin chain,

Phe-Pro-His-Phe-Asp-Leu-Ser-His-Gly-Ser-Ala-Gln-Val, (SEQ ID NO: 1)

Cys-Phe-Pro-His-Phe-Asp-Leu-Ser-His-Gly-Ser-Ala-Gln-Val-Cys (SEQ ID NO: 2)

(where the two Cys residues form a disulfide bond),

Asp-Ala-Leu-Thr-asn-Ala-Val-Ala-His-Val-Asp-Asp-Met-Pro-Asn-ala-Leu-Ser-Ala (SEQ ID NO: 3),

Phe-Leu-Gly-Phe-Pro-Thr (SEQ ID NO: 34),

Leu-Val-Val-Tyr-Pro-Trp-Thr-Gln-Arg-Phe (SEQ ID NO: 4),

Leu-Val-Val-Tyr-Pro-Trp-Thr-Gln-Arg (SEQ ID NO: 5),

Leu-Val-Val-Tyr-Pro-Trp-Thr-Gln (SEQ ID NO: 6),

Leu-Val-Val-Tyr-Pro-Trp-Thr (SEQ ID NO: 7),

Leu-Val-Val-Tyr-Pro-Trp (SEQ ID NO: 8),

Leu-Val-Val-Tyr-Pro (SEQ ID NO: 9),

Val-Val-Tyr-Pro-Trp-Thr-Gln (SEQ ID NO: 10),

Tyr-Pro-Trp-Thr-Gln-Arg-Phe (SEQ ID NO: 11),

Tyr-Pro-Trp-Thr-Gln-Arg (SEQ ID NO: 12),

Tyr-Pro-Trp-Thr-Gln (SEQ ID NO: 13), and

Tyr-Pro-Trp-Thr (SEQ ID NO: 28),

wherein said stem cells are cells which can generate multiple lineages or other stem cells.